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RED BLOOD CELL TRANSFUSION INCREASES PLATELET REACTIVITY IRRESPECTIVE OF ANTIPLATELET THERAPY

Poster Contributions

Hall C

Sunday, March 30, 2014, 3:45 p.m.-4:30 p.m.

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Background: Red blood cell (RBC) transfusion is an independent risk factor of ischemic events, including mortality, in patients with an acute coronary syndrome. It has been reported that RBC transfusion enhances platelet activation and aggregation in vitro in healthy volunteers. The aim of the present investigation was to evaluate ex vivo if RBC transfusion increases platelet activation in patients with and without antiplatelet therapy.

Methods: Prospective pharmacodynamic study with paired data that included patients in whom transfusion of at least 1 RBC pack (clinical indication) was performed. Subjects could be on antiplatelet therapy due to known coronary artery disease (CAD) or without any antiplatelet agent and no CAD known. Platelet reactivity was assessed in two time points: a) pre: immediately before transfusion; and 2) post: 15-30 minutes after transfusion of the first RBC pack was finished. Platelet reactivity was evaluated with: a) Vasodilator-Stimulated Phosphoprotein analysis expressed as P2Y₁₂ reactivity index (PRI; primary endpoint measure); and b) Multiple electrode aggregometry, stimulating with different agonists.

Results: Preliminary results of the first 15 patients included are presented. Higher platelet reactivity measured by VASP was observed after transfusion of 1 RBC pack (pre: 50.8±5.9 vs. post: 56.6±4.8; p=0.037). A numerical trend towards an increase in platelet reactivity was observed both in patients with dual antiplatelet therapy with aspirin and clopidogrel (n=8; 37.2±7.2 vs. 43.9±5.3; p=0.14) and without antiplatelet treatment (n=7; 66.4±4.3 vs. 71.0±3.7; p=0.17). Similar results were obtained with the other platelet function assays (ADP stimulus).

Conclusion: Red blood cell transfusion increases platelet reactivity in patients, irrespective of antiplatelet therapy. This might contribute to explain the increased risk of ischemic events in ACS patients receiving RBC transfusion.